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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHEVALIER, ALICIA ANN

ART UNIT PAPER NUMBER

1772

DATE MAILED: 03/27/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/856,457

Applicant(s)

KONISHI ET AL.

Examiner

Alicia Chevalier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-9, drawn to a light guide plate.

Group II, claim(s) 10-11, drawn to process of production of a light guide plate.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Evidence of lack of unity between the two groups is found in JP 07-118344 and JP 08-094852 wherein it is found to disclose the features of instant claim 1. As such, the special technical features of the claimed invention are not found to define a contribution over the prior art.

3. During a telephone conversation with Stephen G. Adrian on March 13, 2003 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-9. Affirmation of this election must be made by applicant in replying to this Office action. Claims 10 and 11 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

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application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 6 and 7 are indefinite because they fail to set forth the composition or structure of the light guide plate and only claim properties of the light guide plate, i.e. the thermoplastic resin having a melt flow rate of at least 50 [g/10min.] under a load of 2.16 kgf at 280 °C, a 50% breaking energy of at least 0.01J in a drop-weight test, measured for a 3 mm thick plate of the same using a missile-type weight of a radius of ¾ inch, or a glass transition temperature of at least 70 °C. Claims that merely set forth physical characteristics desired in an article, and not setting forth specific compositions which would meet such characteristics are invalid as vague, indefinite, and functional since they cover any conceivable combination of ingredients either presently existing or which might be discovered in the future. Ex parte Slob (PO BdApp) 157 USPQ 172.

Claim 2 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural

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cooperative relationships are: the relationship between the emission face and the incidence face.

It is unclear from the claim language where the incidence face is relative to the emission face.

Claim 5 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the reflective face and the incidence face. It is unclear from the claim language where the incidence face is relative to the reflective face.

The term “type” in claim 6 renders the claim vague and indefinite. The addition of the word “type” to an otherwise definite expression extends the scope of the expression so as to render it indefinite. *Ex parte Copenhaver*, 109 USPQ 118 (Bd. App. 1955).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1 and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Shinohara (JP 07-118344).

Shinohara '344 discloses an optical flat plate (light guide) having excellent smoothness and low birefringence. The flat plate is made of a thermoplastic norbornene resin. See English abstract.

Although Shinohara '344 does not explicitly teach the limitations the thermoplastic resin having a melt flow rate of at least 50 [g/10min.] under a load of 2.16 kgf at 280 °C, a 50% breaking energy of at least 0.01J in a drop-weight test, measured for a 3 mm thick plate of the same using a missile-type weight of a radius of ¾ inch, or a glass transition temperature of at least 70 °C, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. norbornene resin). The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

9. Claims 1 and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Shinohara (JP 08-094852).

Shinohara '852 discloses a light transmission plate made such acrylic resins as polymethacrylate, polycarbonate, or norbornene resin. See English abstract.

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Although Shinohara '852 does not explicitly teach the limitations the thermoplastic resin having a melt flow rate of at least 50 [g/10min.] under a load of 2.16 kgf at 280 °C, a 50% breaking energy of at least 0.01J in a drop-weight test, measured for a 3 mm thick plate of the same using a missile-type weight of a radius of ¾ inch, or a glass transition temperature of at least 70 °C, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. norbornene resin). The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

10. Claims 1 and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Shinohara et al. (5,516,456).

Shinohara '456 discloses a light guide plate comprising for liquid crystal display panels comprising a polymer with a norbornene structure. The liquid crystal display panel is light and convenient to use, excellent in the distinctness of image and productivity, and exhibits no deterioration in image quality during the use in severe, high temperature and high humidity conditions for a long period of time. See column 1, lines 11-29, column 3, lines 8-17 and the abstract.

Although Shinohara '456 does not explicitly teach the limitations the thermoplastic resin having a melt flow rate of at least 50 [g/10min.] under a load of 2.16 kgf at 280 °C, a 50% breaking energy of at least 0.01J in a drop-weight test, measured for a 3 mm thick plate of the same using a missile-type weight of a radius of ¾ inch, or a glass transition temperature of at least 70 °C, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. norbornene resin). The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

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11. Claims 1, 2 and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim (6,151,169).

Kim discloses a light guide plate comprising an incidence face into which light from a light source is introduced and a emission face from which light introduced from said incidence face is emitted and having a sectional shape becoming gradually thinner from a side of the incidence face to a side of a nonicidence face which is located at the opposite side of the incidence face. Also, a reflection face facing the emission face is formed with grooves as a pattern of fine shapes. See figure 6 and 7 and column 5, line 56 to column 7, line 15. The light guide panel is made of a transparent material such as PMMA (polymethyl methacrylate) (col. 6, lines 3-4).

Although Kim does not explicitly teach the limitations the thermoplastic resin having a melt flow rate of at least 50 [g/10min.] under a load of 2.16 kgf at 280 °C, a 50% breaking energy of at least 0.01J in a drop-weight test, measured for a 3 mm thick plate of the same using a missile-type weight of a radius of ¾ inch, or a glass transition temperature of at least 70 °C, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. polymethyl methacrylate, see applicant's specification page 9, line 12). The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa et al. (5,575,549) in view of Shinohara et al. (5,516,456) or Shinohara (JP 07-118344) or Shinohara (JP 08-094852).

Ishikawa discloses a light guide plate comprising an incidence face into which light from a light source is introduced and a emission face from which light introduced from said incidence face is emitted and having a sectional shape becoming gradually thinner from a side of the incidence face to a side of a nonicidence face which is located at the opposite side of the incidence face. Also, a reflection face facing the emission face is formed with grooves as a pattern of fine shapes. See figure 4 and column 4, lines 29-52. The light guide plate is used for backlight for a liquid crystal display unit (col. 1, lines 41-43).

Ishikawa discloses all the limitations of the instant claimed invention except for the material the light guide comprises.

Shinohara '456 discloses a light guide plate comprising for liquid crystal display panels comprising a polymer with a norbornene structure. The liquid crystal display panel is light and convenient to use, excellent in the distinctness of image and productivity, and exhibits no deterioration in image quality during the use in severe, high temperature and high humidity conditions for a long period of time. See column 1, lines 11-29, column 3, lines 8-17 and the abstract.

Shinohara '852 discloses a light transmission plate made such acrylic resins as polymethacrylate, polycarbonate, or norbornene resin. See English abstract.

Shinohara '344 discloses an optical flat plate (light guide) having excellent smoothness and low birefringence. The flat plate is made of a thermoplastic norbornene resin. See English abstract.

Although Shinohara '456, '852 or '344 does not explicitly teach the limitations the thermoplastic resin having a melt flow rate of at least 50 [g/10min.] under a load of 2.16 kgf at 280 °C, a 50% breaking energy of at least 0.01J in a drop-weight test, measured for a 3 mm thick plate of the same using a missile-type weight of a radius of $\frac{3}{4}$ inch, or a glass transition temperature of at least 70 °C, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. norbornene resin). The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a norbornene resin as disclosed in Shinohara '456, '852 or '344 as the light guide panel of Ishikawa because of light and convenient to use, excellent in the distinctness of image and productivity, and exhibits no deterioration in image quality during the use in severe, high temperature and high humidity conditions for a long period of time gained by the use of a norbornene resin.

Furthermore, the exact thickness of the incidence face and nonincidence face and length of the emission face is deemed to be a cause effective variable with regard to the light emitting properties of the plate. It would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effective variable such as thickness of the incidence face and nonincidence face and length of the emission face through routine experimentation in the absence of a showing of criticality in the claimed combined thickness. *In re Boesch*, 205

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USPQ 215 (CCPA 1980), *In re Woodruff*, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). One of ordinary skill in the art would have been motivated to optimize the thickness and length of the face depending on the size to the liquid crystal display to be used.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ishikawa et al. (6,396,934), Ohkawa (6,155,692), and Umemoto et al. (5,727,107) also disclose similar light guides.


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia Chevalier whose telephone number is (703) 305-1139. The Examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:00 p.m. The Examiner can also be reached on alternate Fridays

If attempts to reach the Examiner are unsuccessful, the Examiner's supervisor, Harold Pyon can be reached by dialing (703) 308-4251. The fax phone number for the organization official non-final papers is (703) 872-9310. The fax number for after final papers is (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose phone number is (703) 308-0661.

ac

3/18/03


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772
3/18/03